ALL PURPOSE VENTILATOR

U.S. SUNLIGHT CORP™
Alternative energy for everyday life

923 Tahoe Blvd, Suit 110
Incline Village, NV 89451
Tel: 877-50-USSUN
www.ussunlight.com
support@ussunlight.com

Installation and Mounting Guide

Thank you for purchasing the All Purpose Ventilator from U.S. Sunlight Corp.

We are committed to providing alternative energy products that can improve your everyday life and our environment. We have reduced packaging material and eliminated Styrofoam to reduce the impact on landfills. We offer an installation video that is available to view online at **www.ussunlight.com.**

If there is a problem with your U.S. Sunlight product call us at 1-877-50-USSUN.

Spare parts, installation advice, or recommendations for professional installers in your area are only a phone call away. Professional installation may be much less than you expect, please call us to get average rates for your area.
Before beginning the installation of your new All Purpose Ventilator, please read through the entire installation instructions and call us if you have any questions.

MINIMUM TOOLS REQUIRED

- **Power drill with phillips head driver and an 1/8" drill bit**
- **Adjustable wrench**
- **Measuring tape**
- **tip snips or wire cutters** (for cutting hole in vent screen)
- **Circular saw or handsaw** (for cutting 2x4s for bracing if req.)
- **pencil or marking pen**
- **1/4" coaxial staples** (for securing the wire after installation)
- **caulk gun with roofing adhesive**

Optional Hardware (not included)

Fan mounting options:

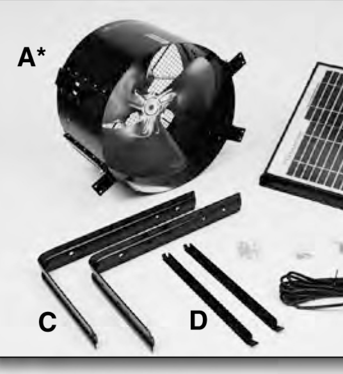
- **3" galvanized deck screws** (for mounting 2x4 braces to framing members if req.)

Panel mounting options: **(roof mounting)**

- **2" pan head tapping screws** (for mounting to composition roof)
- **caulk gun with roofing adhesive** (for mounting solar panel directly to s-tile, flat tile or metal roofs)

Panel mounting options: **(wall mounting)**

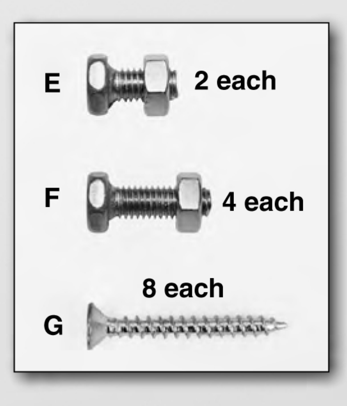
- **1.5"- 3" anchor screws** (depending on your specific type of stucco, cement or brick wall. Must support up to 20 lbs)
- **1.5"- 3" galvanized screws** (depending on your specific type of wood or vinyl siding. Must support up to 20 lbs)
- **caulk gun with roofing adhesive** (for sealing screw heads when mounting to wood or vinyl siding)



BOX CONTENTS - Unpack and check. You should have:

A - Fan assembly
B - Solar panel with 30 ft. of attached wire
C - Wall mounting brackets (2 ea)
D - Cross braces (2 ea)
E - Cross brace bolt and nut (2 ea)
F - Mounting bracket bolt and nut (4 ea)
G - 1.5" screws for fan mounting (8 ea)

*** Some models include a thermal switch in the fan assembly**



© Copyright 2012 All Purpose Ventilator C01 ver2

Mounting the Fan

Sizing Requirements

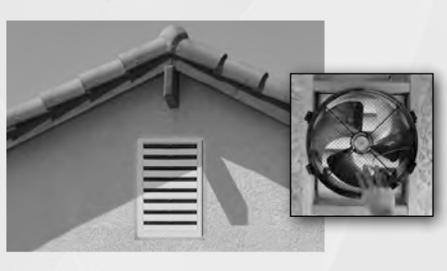
See sizing chart on the box or www.ussunlight.com to assure that you select the correct number of fans for your situation. Some attics have walled off or chambered areas that will require additional fans to properly vent the space.

If you have any questions or concerns please feel free to call our customer service specialists at **877-50-USSUN.**

Determine your mounting application

One of the great features about the All Purpose Ventilator is the many mounting options.

Gable Vent

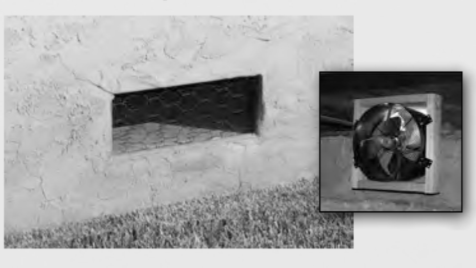


If you have a tile roof and do not want to cut into the tiles, use the gable vent for mounting the fan.

Static or Turbine Vent

Rather than removing the static or turbine vent, simply use the same opening.

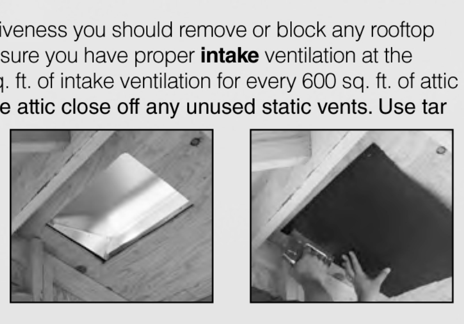
Crawlspace Vent



If your crawlspace has too much moisture, increase the airflow and reduce moisture by installing near a vent opening.

Important Tip:

To maximize the solar fan's effectiveness you should remove or block any rooftop static vents or ridge vents. Make sure you have proper **intake** ventilation at the eave or fascia. Use a ratio of 1 sq. ft. of intake ventilation for every 600 sq. ft. of attic space. To maximize airflow to the attic close off any unused static vents. Use tar paper and staples as shown.



Before you begin:

Loosen (but do not remove) the 8 nuts ***(fig1)*** on the 4 mounting brackets ***(fig 2)*** so they can slide freely. **And remember: Always note the orientation of the fan's air flow relative to the vent opening.**

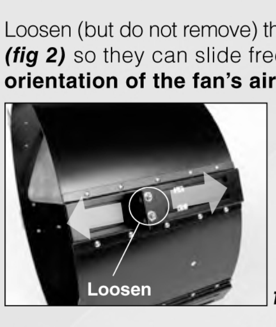


fig 1

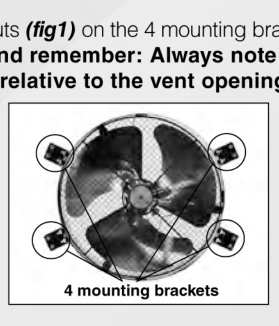


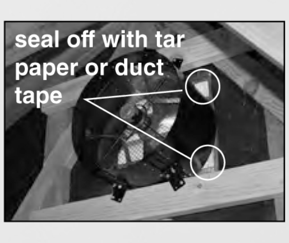
fig 2

Gable Vent Installation

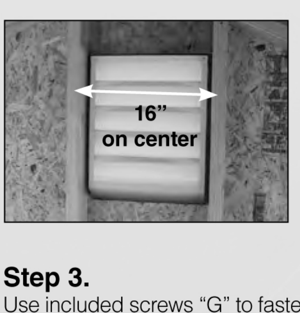
For installation in a gable vent you typically have 2 options:

Important tip for both gable fan installations:

To maximize efficiency of the fan, seal off the gable vent area around the fan to avoid recirculating outside air around the fan and back outside.



Option 1 - vent is located between standard 16" on center framing members



Step 1.
Position the fan over the louvers and slide the mounting brackets into position against the vent frame. ***(fig. 3)***

Step 2.
Mark the position of the holes in the brackets and pre-drill if necessary. ***(fig. 4)***

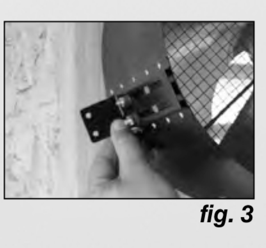


fig. 3

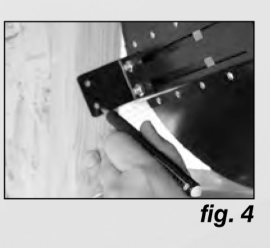


fig. 4

Step 3.
Use included screws "G" to fasten the brackets to the vent frame. There are 8 positions two on each bracket. ***(fig. 5)***

Step 4.
Once brackets have been fastened, slide the fan assembly into position, pressing it firmly against the vent louvers and tighten the 8 nuts. ***(fig. 6)***

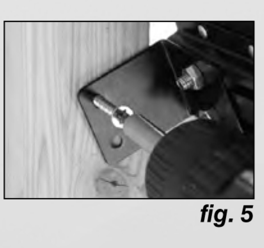


fig. 5

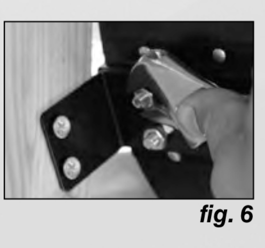
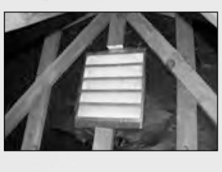


fig. 6

Option 2 - vent area requires additional mounting braces to support the fan



Step 1.
Measure the distance between the 2 framing members that the braces will attach to. ***(fig. 7)***

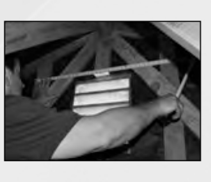


fig. 7

Step 2.
Cut two 2x4 braces to the required length. ***(fig. 8)***

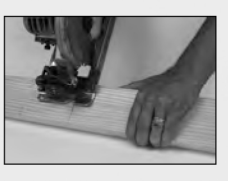


fig. 8

Step 3.
Locate the two braces between 14.25" and 15" apart and centered over the vent opening then fasten to the framing members with 3" screws (not supplied). ***(fig. 9)***

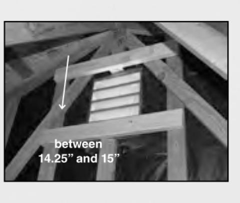


fig. 9

Step 4.
Then mount the fan as described in option 1. ***(fig. 10)***

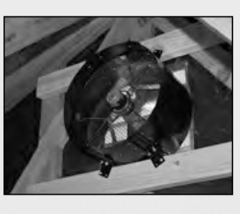


fig. 10

Static or Turbine Vent Installation

The All Purpose Ventilator can be used to push hot air out of your attic through existing roof vent.

Important Tip: Seal off other static vents to avoid turning them into intake vents once the powered fan is installed and running.

Step 1.
Determine the location of the vent to be used and measure the distance between the two rafters. ***(fig. 13)***

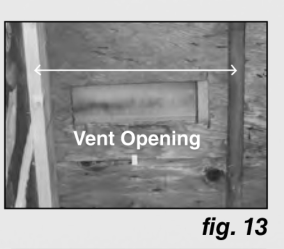


fig. 13

Step 2.
Cut two 2x4 braces to the required length.

Step 3.
Locate the two braces between14.25" and 15" apart and centered over the vent opening then fasten to the rafters with 3" galvanized deck screws (not supplied). ***(fig. 14)***

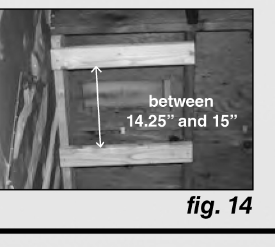


fig. 14

Step 4.
Position the fan assembly between the two braces and slide the fan assembly towards the vent opening. ***(fig. 15)***

Step 5.
Fasten the brackets to the two braces with included screws "G" ***(fig. 15)*** and tighten the 8 nuts. ***(fig. 16)***

Note: When the rafter is greater than 5" wide locate the braces between the rafters to insure fan can be positioned against the vent.

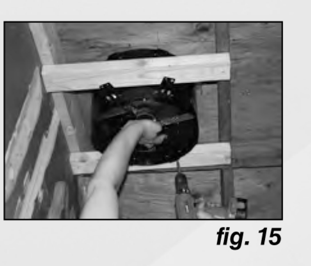


fig. 15

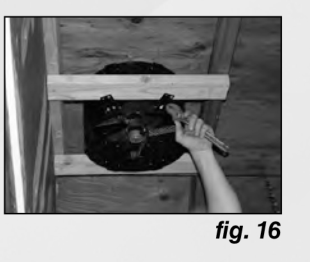


fig. 16

Crawl Space Vent Installation

Keeping air moving in your crawl space can help to remove moisture and inhibit mold and mildew growth. The All Purpose Ventilator can be mounted as described above, or a box frame can be built to hold the fan in position. It is recommended that you evaluate your crawlspace to determine the best method.

To build the box frame

Step 1.
Depending on the distance your floor joist are seperated, you will need to cut 4 braces: two at 14.5" for the side braces, one at 17.5" for the bottom brace and one between 17.5" and 25.5" for the top brace ***(fig. 17).*** Most floor joists are either 16" on center or 24" on center***. Measure the distance before cutting the top brace to be sure of the distance required.***

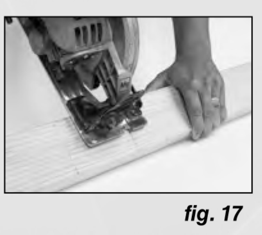


fig. 17

Step 2.
Fasten the 4 boards together with 3" screws to make a square box with inner dimensions 14.5" x 14.5". ***(fig. 18 & 19)***

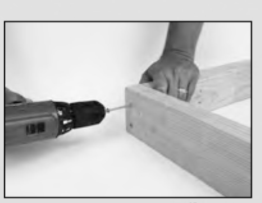


fig. 18

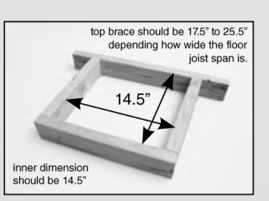

top brace should be 17.5" to 25.5" depending how wide the floor joist span is.
14.5"
inner dimension should be 14.5"

fig. 19

To mount in crawlspace

Step 3.
Mount the frame in front of the vent opening by attaching it to the floor joists with 3" galvanized screws. If the frame assembly and fan mount lower than the bottom of the vent opening, ***(fig. 20)*** mount the frame about 8" to 10" away from the vent to prevent direct contact with the foundation when the fan is mounted. ***(fig. 21a)*** Secure the frame to the bottom of the floor joists with at least 2 screws on each side making sure it is centered evenly on both. ***(fig. 21b)***

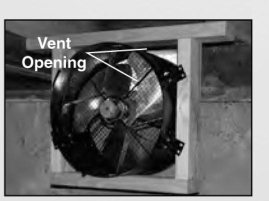


fig. 20

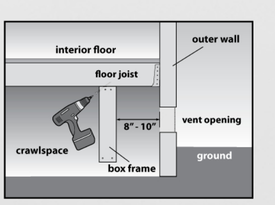


fig. 21a

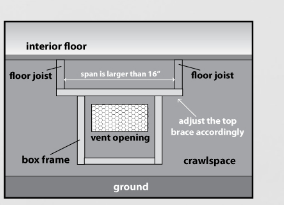


fig. 21b

Step 4.
Mount the fan inside the frame by attaching the brackets with included screws "G". Center the fan in the frame making sure that there is at least 4" of clearance between the fan housing and the crawlspace vent opening. ***(fig. 22)***

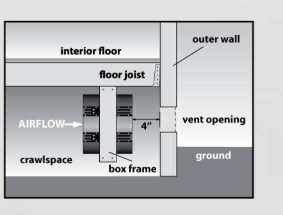
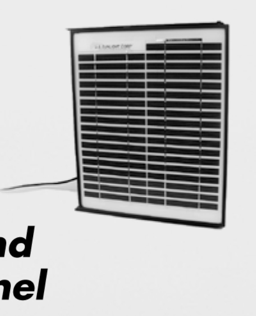


fig. 22

Mounting the Solar Panel



Maintenance Tip: The solar panel is most effective when clean and free of dust, leaves, and debris. Normally, rainwater will cleanse the solar panel and keep it operating at peak efficiency. If necessary, simply hose off the solar panel between rain showers.

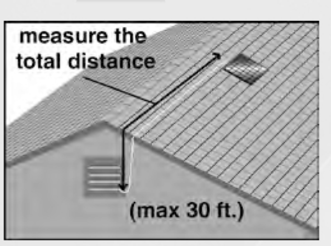


fig. 23

Determine the distance between the vent and the area you will be mounting the solar panel

The fan's solar panel should be adjusted to maximize exposure to the sun's path during the day. The optimal adjustment is to have the panel 90 degrees to the midday path of the sun (south or southwest facing slopes are best).
You can re-adjust the panel during winter or summer seasons if desired.

The Solar panel unit comes with 30 ft. of wire. It is a good idea to measure the distance from the vent opening and where you'll be installing the panel to make sure you have enough wire to cover the span. ***(fig. 23)***

Surface mounting on composition roofs:

Step 1.
Loosen and remove screw A (both sides) to allow the panel to swing away from the base. Set the screws aside. ***(fig. 24)***

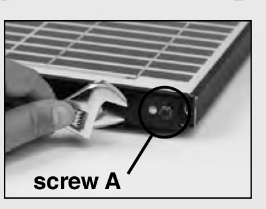


fig. 24

Step 2.
Before mounting, make sure to pull the wire back through the hole in the center of the base so the base can lay flat on the roof surface when installed. ***(fig. 25)***

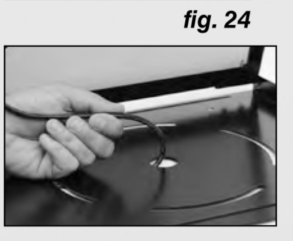


fig. 25

Step 3.
Mount the base using four 3" galvanized screws making sure to seal the screw holes with a roof tile adhesive as shown. Tilt the panel away from the base while installing the screws. If the panel is to remain flat against the base when installed it is recommended that you allow the roof tile adhesive to completely dry before contacting with the panel. ***(fig. 26 & 27)***

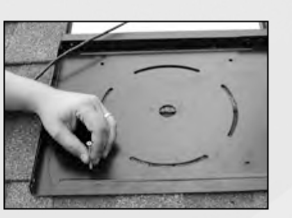


fig. 26

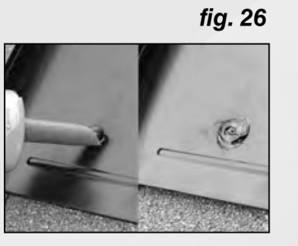


fig. 27

Surface mounting for S-Tile, Flat Tile or Metal roofs

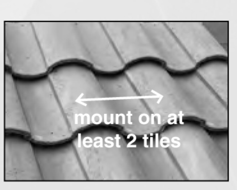


fig. 28

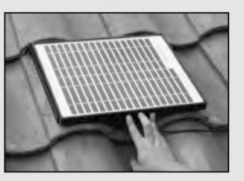


fig. 29

Step 1.
Determine the location of the contact points by positioning the panel in the desired area. For S-Tile roofs, find a position with as much surface area coming in contact with the bottom of the panel as possible. The panel must be mounted on at least 2 rows of tile as shown. ***(fig. 28 & 29)***

Step 2.
Apply enough roof tile adhesive to the underside of the base to firmly secure the panel to the surface. Both surfaces should be dry and free of any dirt or solvents. ***(fig. 30)***

Step 3.
The panel can be tilted into two positions with the adjustment arm, chose the best angle and reinstall the adjusting screws (screw A). ***(fig. 31)***

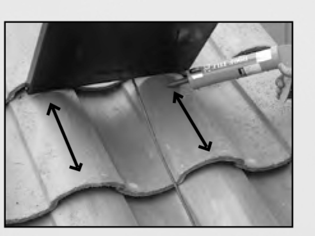


fig. 30

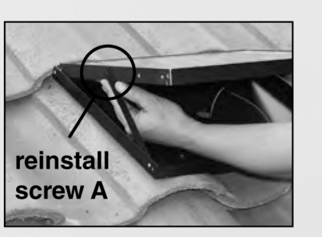
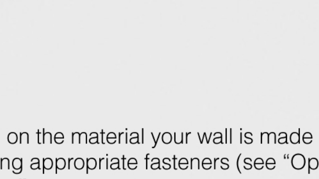
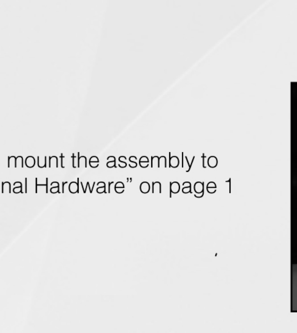


fig. 31

Wall mounting:





Brackets are included to mount the panel to a wall if preferred.
First, assemble the braces to the brackets as follows:

Step 1.
Attach the brace to each bracket with the cross brace bolt and nut (E.) ***(fig. 32)***

Step 2.
Attach the brackets to the panel using the 4 bolts (F.) ***(fig. 33)***

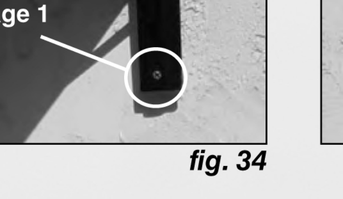


fig. 32

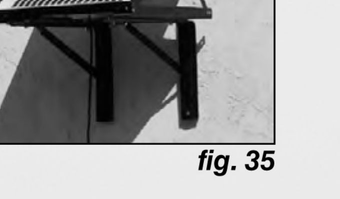


fig. 33

Step 3.
Depending on the material your wall is made of, mount the assembly to the wall using appropriate fasteners (see "Optional Hardware" on page 1 for details). ***(fig. 34 and 35)***

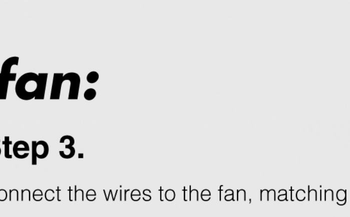


fig. 34

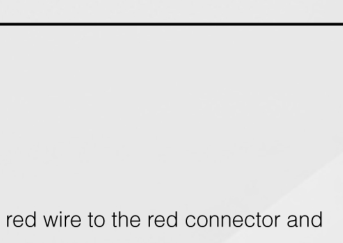
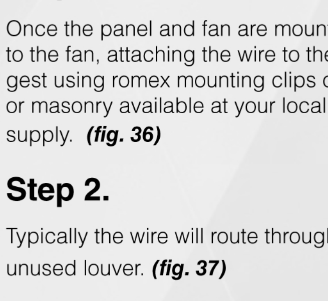
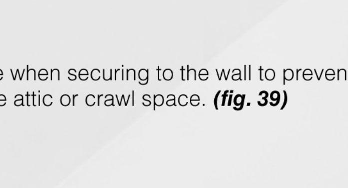


fig. 35



Fascia mounting kit

With the optional fascia bracket kit, the panel can be mounted directly to a fascia board.



To order go to: www.ussunlight.com or call 877-55-USSUN

Connecting the panel to the fan:

Step 1.
Once the panel and fan are mounted, route the wire from the panel to the fan, attaching the wire to the building appropriately. We suggest using romex mounting clips or coaxial staple for either wood or masonry available at your local hardware store or home builder supply. ***(fig. 36)***

Step 2.
Typically the wire will route through an opening in the vent or an unused louver. ***(fig. 37)***

Step 3.
Connect the wires to the fan, matching the red wire to the red connector and the black to the black connector on the motor. ***(fig. 38)***

Step 4.
Include a drip curve if possible when securing to the wall to prevent water running down the wire and into the attic or crawl space. ***(fig. 39)***

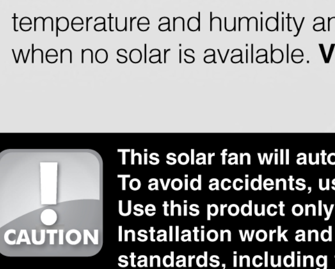

original black lead from solar panel to motor
thermal switch
red lead
(leave as is)
black lead from thermal switch connected to black terminal on motor

fig. 15

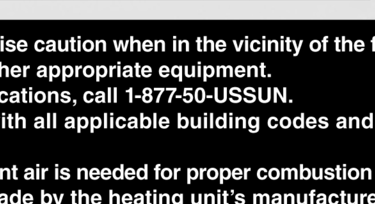
Thermal Switch - Optional Installation

The thermal switch will shut down the fan when the temperature drops below approximately 65˚F and turn the fan back on when the attic temperature rises to approximately 80˚F. To install the thermal switch, remove the **BLACK** lead from the fan motor and attach it to the thermal switch. Attach the other lead from the thermal switch to the **BLACK** terminal on the motor. Secure the wires to the motor bracket with tape or zip ties to prevent them from interfering with the fan blade. If you prefer to have the fan running during cooler seasons to remove moisture from the attic, do not install the thermal switch ***(fig. 15). As an upgrade from the mechanical thermal switch, utilize the Solar Controller with an electronic thermostat and humidistate as well as additional features.***

Additional Accessory Available

SOLARCONTROLLER™ WITH DUAL MODE TECHNOLOGY

The Solar Controller™ has a built in thermostat and humidistat that will measure the attic temperature and humidity and allow the fan to have extend run time in the evenings or when no solar is available. **Visit www.ussunlight.com for additional information.**



CAUTION

**This solar fan will automatically start whenever the sun shines on the solar panel. Always exercise caution when in the vicinity of the fan.
To avoid accidents, use appropriate attire: safety glasses, gloves, hard hats, restraints and other appropriate equipment.
Use this product only as indicated by U.S. Sunlight Corp. Any questions on appropriate applications, call 1-877-50-USSUN.
Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable building codes and standards, including fire requirements.
To prevent back drafting of any fuel burning equipment in the attic such as a gas furnace, sufficient air is needed for proper combustion and exhausting of gases through the flue of fuel burning equipment. Follow the requirements made by the heating unit's manufacturer. Additionally, follow safety standards set fort by the National Fire Protection Association (NFPA), and the American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), and the local code authorities.**